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points to the fact that the Cree once possessed exogamous gentes with descent in the male line. How unnecessary this hypothesis is, is shown in this paper.

[4] See *Amer. Anthrop., New York*, N. S., 17, 329–340; *Ibid.*, 588–591; per contra, *Ibid.*, 175–177.

[5] *Smithsonian Contributions to Knowledge*, No. 218, p. 217.

[6] According to my unpublished information.

[7] *Smithsonian Inst., Rep. Bur. Amer. Ethn.*, 28, 221–290b.

[8] We are confirmed in this belief by the fact taat the Atsina, a member of a linguistically divergent major group of Algonquain tribes, organized in non-totemic exogamous gentes with descent in the male line employ the same words for 'my son' and 'my daughter' as they do for for 'my brother's son' and 'my brother's daughter' respectively, with male speaker in the latter cases. The word for 'my daughter' is the common Algonquian one; that for 'my son' apparently is not old.

REPORT OF THE ANNUAL MEETING

Prepared by the Home Secretary

The sessions of the Annual Meeting of the National Academy of Sciences were held in the United States National Museum, Washington, D. C., on April 17, 18, and 19, 1916.

Seventy-two members were present as follows: Messrs. C. G. Abbot, Allen, Ames, Becker, Boltwood, Britton, Bumstead, D. H. Campbell, Cannon, Cattell, W. B. Clark, F. W. Clarke, F. M. Clarke, Comstock, Conklin, Coulter, Cross, Dall, Davenport, Davis, Day, Donaldson, Fewkes, Flexner, Hague, Hale, E. H. Hall, Harper, Hayford, Hillebrand, Holmes, Howell, Iddings, Jennings, Leuschner, Lillie, Loeb, Lusk, Mall, Meltzer, Mendel, Merriam, Merritt, Milliken, More, Morley, H. N. Morse, Moulton, E. L. Nichols, A. A. Noyes, Parker, Pickering, Pupin, Ransome, Reid, Remsen, Rosa, Schuchert, Scott, E. F. Smith, Story, Van Hise, Van Vleck, Walcott, Webster, Welch Wheeler, David White, H. S. White, Wilson, R. W. Wood, Woodward.

BUSINESS SESSIONS

The President announced the following deaths since the last Annual Meeting of the Academy:

JOHN ULRIC NEF, died August 13, 1915, elected in 1904.
FREDERICK WARD PUTNAM, died August 18, 1915, elected in 1885.
ARTHUR W. WRIGHT, died December 19, 1915, elected in 1881.
EUGENE W. HILGARD, died January 8, 1916, elected in 1872.
PAUL EHRLICH, foreign associate, died August 20, 1915.

REPORTS FROM OFFICERS OF THE ACADEMY

The reports of the President and Treasurer for the year 1915 were presented to the Academy in printed form as transmitted to the Senate of the United States by the President of the Academy.

The report of the Home Secretary was presented as follows:

The President of the National Academy of Sciences.

Sir: I have the honor to present the following report on the publications and memberships of the National Academy of Sciences for the year ending April 19, 1916.

The Memoirs of the National Academy of Sciences, volume 12, part 2, entitled, "Variations and Ecological Distribution of the Snails of the Genus Io," by Charles C. Adams, has been published and distributed, as has also the memoir forming volume 12, being, "A Catalogue of the Meteorites of North America," by Oliver C. Farrington. Volume 14, memoir 1, entitled, "Report on Researches on the Chemical and Mineralogical Composition of Meteorites, with Especial Reference to Their Minor Constituents," by George Perkins Merrill, is going through the press and the final proof has been passed. It awaits casting and printing before it is published.

The biographical memoirs of John W. Powell, Miers Fisher Longstreth, Charles Anthony Schott, Peter Lesley, Henry Morton, and Alfred Marshall Mayer have been published, and that of George William Hill, by Ernest W. Brown, has also been published but not distributed.

Four members have died since the last Annual Meeting: John Ulric Nef, on August 13, 1915, elected in 1904; Frederick W. Putnam, on August 18, 1915, elected in 1885; Arthur W. Wright, on December 19, 1915, elected in 1881; and Eugene W. Hilgard, on January 8, 1916, elected in 1872.

One foreign associate, Paul Ehrlich, died on August 20, 1915.

There are 139 active members on the membership list, 1 honorary member, and 38 foreign associates.

Respectfully submitted, ARTHUR L. DAY, Home Secretary.

The report of the Foreign Secretary was presented as follows:

I have the honor to report on the work of the foreign secretary for the year ending April 19, 1916.

An attempt has been made, through correspondence with various academies and societies belonging to the International Association of Academies, to secure a partial continuance of some portions of the Association's work through the period of the war. Although international meetings are obviously not feasible, it was hoped that a temporary transfer of the functions of the leading academy from Berlin to Amsterdam, as suggested by the former body, might serve a useful purpose. Unfortunately, however, certain difficulties of an insuperable nature prevented the proposed transfer, and no further steps can be taken at present.

It was suggested to the Amsterdam Academy by the foreign secretary, also acting in the capacity of secretary of a joint committee of the National Academy and the American Association for the Advancement of Science, that the Accademia dei Lincei be requested to use its good offices to secure the continuation of the work of the Zoological Station at Naples. A favorable reply was received from the President of the Lincei; but the participation of Italy in the war has prevented Dr. Dohrn from retaining the direction of the Station, which is now under an Italian administration.

At the request of the president of the Amsterdam Academy, who is also permanent secretary of the International Geodetic Association, the Secretary of State was asked by the Academy to use his influence to secure the continued participation of the United States in the work of the Association, and the maintenance of the international latitude station at the Ukiah, California. Through the action of the Secretary of State, and the interest of members of Congress, the necessary appropriations have been provided.

GEORGE E. HALE, Foreign Secretary.

REPORTS FROM COMMITTEES ON TRUST FUNDS

A report was received from the directors of the Bache Fund, stating that Ira Remsen resigned as Director of the Fund at the annual meeting, 1915, and that the two remaining members of the committee chose Arthur G. Webster as the third member and that Edwin B. Frost was elected chairman. This report contained also an announcement of the research grants made from the Bache Fund during the year ending April 17, 1916; and it stated that on April 7, 1916, the Bache Fund had on hand a cash income balance of $980.62, and an invested income of $2575.

A report was received from the Trustees of the Watson Fund, signed by Edward C. Pickering (chairman) and W. L. Elkin. In the report the trustees recommended that the sum of $500 from the income of the Watson Fund be appropriated to Professor John A. Miller, Director of the Sproul Observatory, for measuring plates already taken for the determination of stellar parallaxes. This is a continuation of a grant awarded last year. It was recommended that the sum of $300 from the income of the Watson Fund be appropriated to Professor Herbert C. Wilson, Director of the Goodsell Observatory, for measurements of the positions of asteroids on photographs already taken. These recommendations were adopted by the Academy.

A report was received from the Committee on the Henry Draper Fund, signed by George E. Hale (chairman) as follows:

> Four members of the committee, without consulting the fifth member (Professor Michelson), recommend that the Henry Draper Gold Medal be awarded to ALBERT A. MICHELSON, of the University of Chicago, for his numerous and important contributions to spectroscopy and astronomical physics.
>
> It is impossible in the brief space of this report even to enumerate Professor Michelson's major services to science. These include the precise determination of the velocity of light; the well-known experiment (with Professor Morley) on ether drift; the measurement of the absolute wave-length of light involved in his determination of the length of the standard meter; the measurement of tides in the body of the earth with new apparatus of extraordinary precision; and the invention of the interferometer, the echelon, and other instruments of prime importance to the student of light. He has also constructed a ruling machine yielding diffraction gratings of the longest size and the highest resolving power yet attained, and carried on a multiplicity of researches of wide range and fundamental significance.
>
> The committee also recommends that a grant of $250 be made to Professor Philip Fox, Director of the Dearborn Observatory, of Northwestern University, Evanston, Illinois, to apply toward the cost of a machine for measuring astronomical photographs.

The recommendations contained in the report were adopted by the Academy.

A report was received from the Committee on the J. Lawrence Smith Fund, signed by Edward W. Morley (chairman). A brief account was given of the researches aided by previous grants. The Committee reported a cash balance of income of $834.77, of which $250 is already appropriated, though not yet paid over. There is also an invested income balance of $1532.50. The Committee unanimously recommended that a further grant of $300 be made to S. A. Mitchell, professor in the University of Virginia, University, Va., to aid in securing observations of paths and of radiants of meteors and in computing orbits where observations are sufficient. This recommendation was adopted by the Academy.

A report was received from the Committee on the Comstock Fund, signed by Edw. L. Nichols (chairman). The Committee reported that the total income from the fund now available is $1661.32. The next award will be made at the end of the five-year period specified in the bequest, namely, at the annual meeting in April, 1918.

A report was received from the Directors of the Walcott Gibbs Fund, signed by the three directors. The report stated that T. W. Richards was elected to fill the vacancy caused by the withdrawal of Ira Remsen from the board. Only one appropriation had been made from the income of the Fund—a grant (No. 6) to Professor Gregory P. Baxter of Cambridge of $300 to provide apparatus, especially of platinum and quartz, and materials for his researches on atomic weights and changes of volume during solution. The unexpended income of the fund was stated to be $90.77. A brief account was given of the progress made on the researches aided by previous grants.

A report was received from the Committee on the Murray Fund, signed by Arnold Hague (chairman). The Committee announced that the unusual expenses due to the designing and striking off of the Agassiz medal, as called for by the terms of the gift, has required all the early income; but that from now on the interest from the fund will be applied for the striking off of the Agassiz medal and contributions to oceanography.

A summarized statement of the grants made from the various trust-funds of the Academy during the year ending April 17, 1916, will be found at the end of this number of the PROCEEDINGS.

REPORT OF THE BOARD OF EDITORS OF THE PROCEEDINGS

The Board of Editors of the PROCEEDINGS reported to the Academy as follows:

The twelve numbers of the PROCEEDINGS issued since its last annual report contain 157 original papers, the report of the Annual and Autumn Meetings, notices of scientific memoirs, and the report of the Panama Canal Committee. These numbers consist of 641 pages, an average of 53 pages per number, and of about 4 pages per article. The papers are distributed among different sciences as follows: mathematics, 17, astronomy 37, physics 11, chemistry 12, geology, paleontology, and mineralogy 16, botany 3, zoology 13, genetics 17, physiology, pathology, bacteriology, and biochemistry 16, anthropology 13, psychology 2.

The universities or research laboratories that have contributed three or more papers are as follows: Carnegie Institution 32, divided as follows: Mount Wilson Solar Observatory 22, Nutrition Laboratory 4, Marine Biology 3, Terrestrial Magnetism 1, Botanical Research 1, Geophysical Laboratory, 1; University of California 17; Harvard University 16; Johns Hopkins University 14; University of Chicago 13; Yale University 7; Rockefeller Institute 7; Princeton University 6; U. S. Geological Survey 5; U. S. National Museum 5; Station for Experimental Evolution 4; University of Illinois 3; American Museum of Natural History 3.

The edition of the PROCEEDINGS was reduced from 3000 to 2200 copies with the issue of May, 1915, and it is to be further reduced to 1700 copies with the issue of May, 1916, as the distribution of free copies in America is to be now entirely discontinued. At present about 900 copies are mailed to foreign exchanges and about 250 copies to members of the Academy and other American subscribers.

The total expense incurred in connection with the PROCEEDINGS during the year 1915, representing approximately the cost of publication of the first volume, is shown by the report of the treasurer to be $4300.67. Of this sum $2977.37 was expended for printing and distributing, corresponding to a cost of $4.65 per page.

The Board recommends that action be taken by the Academy informing members and others presenting accounts of new researches at the Academy meetings that they are expected to furnish to the Home Secretary at the time of the meeting a brief paper describing these researches in form suitable for publication in the PROCEEDINGS. The Board also suggests that, in order to secure fuller circulation of the PROCEEDINGS in our universities, colleges, and research laboratories members of the Academy be requested to see that their own institutions subscribe to the PROCEEDINGS in case they have not already done so.

GENERAL BUSINESS

A report of the Committee on Bill H. R. 528, discontinuing the use of the Fahrenheit thermometer scale in government publications was adopted as follows:

Your committee for the consideration of Bill H. R. 528, consisting of Messrs. C. G. Abbot, S. W. Stratton and C. M. Marvin, unanimously reports the following resolution, and moves its adoption.

The National Academy of Sciences shares the desire of scientific men in general for international and world-wide uniformity in units of measurement of all kinds, and with this object in view it favors the introduction of the Centigrade scale of temperature, and units of the metric system generally, as standards in the publications of the United States Government.

It must be recognized that considerable initial expense must be incurred by the U. S. Weather Bureau in changing its apparatus to conform to the proposed act. Furthermore, on account of the more open scale of the Centigrade system that Bureau will be subject to a continued increased cost of publication, owing to the necessity of printing the first decimal place in order to maintain the present accuracy. The use of negative temperatures and minus signs entails greater liability to errors, and more clerical labor would be required in checking the accuracy of the reports of coöperative observers of the Weather Bureau, and in computing monthly and other mean temperatures.

Notwithstanding the foregoing, the Academy is in favor of legislation to make the Centigrade scale of temperatures the standard in publications of the United States Government, and funds should be made available by Congress to accomplish the desired result.

The Academy favors Bill H. R. 528, "To discontinue the use of the Fahrenheit Thermometer Scale in Government Publications," but recommends that it be amended by the addition of the following:

"Sec. 4. When in the publication of tables containing several meteorological and climatic elements, the use of data in Centigrade temperatures leads to manifest incongruities, the Chief of the Weather Bureau is directed to publish related data in such units as are necessary to make the tables homogeneous and to secure international uniformity as far as practicable.

"Sec. 5. Nothing in this act shall prevent the use of the absolute Centigrade scale of temperature in publications of the Government."

Upon recommendation of the Council it was voted that in accordance with the request of the chairman of the Committee on Foreign Affairs of the House of Representatives a committee of the Academy be appointed to prepare a report upon the joint Resolution (H. J. Res. 99), "That the President be, and he is hereby, requested to ascertain the views of foreign governments regarding the proposition to appoint an international commission to prepare a universal alphabet," and that the report be submitted to the President of the Academy, who in turn will transmit it to the chairman of the Committee on Foreign Affairs of the House of Representatives, reporting his action in the matter at the next annual meeting of the Academy.

Messrs. Dewey, Bell, Lindgren, Cattell, and Boas were appointed members of this committee.

The Council also recommended to the Academy the appointment of a committee to discuss possible plans of coöperation with a committee of engineers. A committee was appointed, consisting of George E. Hale, chairman; J. S. Ames, John F. Hayford, E. L. Nichols, M. I. Pupin, E. B. Rosa, Elihu Thomson, C. R. Van Hise, C. D. Walcott, and R. S. Woodward.

The President announced that an invitation had been received from the members of the Academy living in Boston that the Academy hold its Autumn Meeting in the year 1916 in that city. The following members were appointed to serve as a local committee of this meeting: William M. Davis, chairman, W. T. Councilman, Arthur A. Noyes, George H. Parker and E. C. Pickering.

ELECTION OF FOREIGN SECRETARY, COUNCILLORS AND NEW MEMBERS

Mr. GEORGE E. HALE was reelected foreign secretary of the Academy for a term of six years.

R. H. CHITTENDEN and M. I. PUPIN were elected members of the Council for a term of three years.

The following persons were elected to membership in the Academy:

GILBERT AMES BLISS, mathematician, University of Chicago, Chicago, Illinois.
FRANK SCHLESINGER, astronomer, University of Pittsburgh, Pittsburgh, Pa.
GREGORY PAUL BAXTER, chemist, Harvard University, Cambridge, Mass.
MARSTON TAYLOR BOGERT, chemist, Columbia University, New York City.
LELAND OSSIAN HOWARD, entomologist, U. S. Department of Agriculture, Washington, D. C.
ALFRED GOLDSBOROUGH MAYER, zoölogist, Carnegie Institution, Tortugas, Florida.
RAYMOND PEARL, biologist, Maine Agricultural Experiment Station, Orono, Maine.
PHOEBUS AARON THEODORE LEVENE, physiological chemist, Rockefeller Institute for Medical Research, New York City.
OTTO FOLIN, physiological chemist, Harvard Medical School, Boston, Mass.

SCIENTIFIC SESSIONS

Two public lectures on the WILLIAM ELLERY HALE FOUNDATION were given on April 17 and 19 by HENRY FAIRFIELD OSBORN, President of the American Museum of Natural History, on The Origin and Evolution of Life on the Earth.

Four public scientific sessions were held on April 17 and 18 at which the following papers were presented:

SYMPOSIUM ON THE EXPLORATION OF THE PACIFIC. ARRANGED BY W. M. DAVIS

W. M. DAVIS: On exploration of the Pacific.
J. F. HAYFORD: The importance of gravity observations at sea in the Pacific.

L. J. BRIGGS, President of the Philosophical Society of Washington: A new method of determining gravity at sea.

C. SCHUCHERT: The problem of continental fracturing and diastrophism in Oceanica.

J. P. IDDINGS: Petrological problems in the Pacific.

G. W. LITTLEHALES: Hydrographic Engineer United States Hydrographic Office: The extent of knowledge of the oceanography of the Pacific.

C. F. MARVIN, Chief of the United States Weather Bureau: Marine meteorology and the general circulation of the atmosphere.

WM. H. DALL: On the distribution of Pacific invertebrates.

H. A. PILSBURY, Academy of Natural Sciences of Philadelphia: Land mollusca of the Pacific.

W. G. FARLOW: Marine algae of the Pacific.

D. H. CAMPBELL: Problems of the Pacific floras.

J. W. FEWKES: The Pacific as a field for anthropological investigation.

REGULAR PROGRAM

S. J. MELTZER: On permeability of endothelia.

I. S. KLEINER and S. J. MELTZER: The influence of morphin upon the elimination of intraveneously injected dextrose.

JACQUES LOEB: The sex of a parthenogenetic frog.

EDMUND B. WILSON: The distribution of the chondrisomes to the spermatozoa in scorpions.

ARTHUR KEITH (introduced by George F. Becker); A new form of metamorphism.

J. P. IDDINGS and E. W. MORLEY: Contributions to the Petrology of Japan, Philippine Islands and the Dutch Indies.

CHARLES R. STOCKARD, Professor of Anatomy, Cornell University Medical College: Hereditary transmission of defects resulting from alcoholism.

W. B. CANNON: Recent observations on the activity of some glands of internal secretion.

H. H. DONALDSON: Studies in the water content of the nervous system.

GEORGE E. HALE: Some recent results of solar research.

CHARLES E. ST. JOHN (introduced by G. E. Hale): An investigation of the suggested mutual repulsion of Fraunhofer lines.

ARTHUR S. KING (introduced by G. E. Hale): Anomalous dispersion phenomena in electric furnace spectra.

WALTER S. ADAMS (introduced by G. E. Hale): Illustrations of the new spectroscopic method of measuring stellar distances.

HARLOW SHAPLEY (introduced by G. E. Hale): Some results with the new 10-inch photographic telescope.

C. G. ABBOT and L. B. ALDRICH: The pyranometer, an instrument for the measurement of sky radiation.

G. C. COMSTOCK: Invisible companions of binary stars.

EDWIN H. HALL: Theory of electric conduction in metals.

F. R. MOULTON: The evolution of the stars.

A. O. LEUSCHNER, Watson Medallist: The minor planets discovered by James C. Watson.

WM. H. DALL: Biography of Professor Theodore Nicholas Gill (by title).

W. W. CAMPBELL: Biography of Professor Edward Singleton Holden (by title).

W. W. CAMPBELL: Biography of Professor Simon Newcomb (by title).

FIELDING H. GARRISON: Biography of John Shaw Billings (by title).

CHARLES R. VAN HISE: Report of the work of the committee upon the Panama Canal slides.

H. FIELDING REID: The mechanics of the Panama slides.

THEODORE LYMAN, Director Jefferson Physical Laboratory, Harvard University: The present state of knowledge of the extreme ultra violet.

ROBERT A. MILLIKAN: A redetermination of e and N.

CARL L. ALSBERG, Chief of the Bureau of Chemistry, United States Department of Agriculture: The relation of investigational work to the enforcement of the food and drugs act.

J. WALTER FEWKES: Recent explorations on the Mesa Verde National Park, Colorado.

ERWIN F. SMITH: Further evidence on the nature of crown gall and cancer and that cancer in plants offers strong presumptive evidence both of the parasitic origin and of the essential unity of the various forms of cancer in man and animals.

AWARD OF MEDALS

At the annual dinner of the Academy held at the Hotel Raleigh on April 18, 1916, Medals for Eminence in the Application of Science to the Public Welfare were awarded to Cleveland Abbe for distinguished public service in establishing and organizing the weather service of the United States, and to Gifford Pinchot for distinguished public service in organizing and directing the movement for the systematic conservation of the natural resources of the United States; and the James Craig Watson medal was awarded to Armin Otto Leuschner for the skill and ability which he has shown in supervising the preparation of tables of the Watson asteroids, involving original methods, and leading to results of much value to celestial mechanics.

RESEARCH GRANTS FROM THE TRUST FUNDS OF THE ACADEMY

During the twelve months preceding the Annual Meeting of the Academy the following grants for the promotion of research were made from the trust funds of the Academy.

GRANTS FROM THE BACHE FUND

No. 188, H. W. NORRIS, Grinnell College, $100. For assistance in the analysis of the cranial nerves of Coecilians (Herpele and Dermophis).

No. 189, E. J. WERBER, Woods Hole, $230. For assistance in experimental studies aiming at the control of defective and monstrous development: (1) the effect of toxic products of metabolism on the developing teleost egg; (2) the effect of experimentally produced diseases of parental metabolism on the offspring of mammals.

No. 190, H. S. JENNINGS, Johns Hopkins University, $200. For assistance in the study of evolution in a unicellular animal multiplying by fission: heredity, variation, racial differentiation in *Difflugia*.

No. 191, P. W. BRIDGMAN, Harvard University, $500. For mechanical assistance in an investigation of various effects of high hydrostatic pressure, in particular the effect of pressure on electrical resistance of metals. (Supplementary to grant No. 184.)

No. 192, J. P. IDDINGS, Washington, D. C., $1000. For apparatus and assistance in the microscopical and chemical investigation of igneous rocks for the purpose of extending knowledge regarding petrographical provinces and their bearings on the problem of isostasy.

No. 193, C. A. KOFOID, University of California, $500. For assistance in securing animals in the Indian jungle and in their preparation for study in research on the intestinal protozoa.

No. 194, R. A. DALY, Harvard University, $1000. For the purchase of a thermograph of new design for determining temperatures in the deep sea.